

Appl. No. 10/587,592
Amtd. Dated February 4, 2010
Reply to Office Action of December 8, 2009

Attorney Docket No. 81844.0051
Customer No. 26021

REMARKS/ARGUMENTS:

Claims 1-7 are pending in the application. Reexamination and reconsideration of the application, in view of the following remarks, are respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. §103:

Claims 1-5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Yamada et al. (U.S. Patent No. 5,545,443) in combination with Lau et al. ("Growth of Epitaxial ZnO thin films by organometallic Chemical Vapor Deposition"). Applicant respectfully traverses this rejection. Claim 1 is as follows:

A method for making a transparent conductive film comprising introducing an organozinc compound and a mixed gas in which an oxidizing agent is diluted with a hydrogen gas, into a deposition chamber to form a transparent conductive film containing zinc oxide as a main component on a substrate disposed in the deposition chamber.

Applicant respectfully submits that the cited references cannot render claim 1 obvious, because the cited references fail to teach or suggest "introducing an organozinc compound and a mixed gas in which an oxidizing agent is diluted with a hydrogen gas."

The Office acknowledges that Yamada fails to teach diluting the oxidizing agent with hydrogen. And instead, the Office states that it would have been obvious for one skilled in the art at the time the invention was made to have modified the Yamada process to include the oxidizing agent to be mixed with hydrogen as evidenced by Lau.

Applicant respectfully disagrees. Yamada teaches that purified water to be used for the reaction is supplied using Ar as a carrier gas. (see e.g., Yamada,

column 4, lines 39-47). Yamada's use of an inert gas such as argon is in contrast to the present invention's use of hydrogen. Therefore, Yamada teaches away from the present invention. In determining the differences between the prior art and claimed invention, a prior art reference must be considered in its entirety.

"A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." MPEP 2141.02(VI)

The Office at p. 3, bottom paragraph of the Office Action states that one skilled in the art would combine Yamada and Lau "with the expectation of achieving similar success and improved uniformity and surface finish."

Applicant respectfully disagrees with the Office's interpretation of Lau. The Office's interpretation appears to be based on p. 1843, right column, lines 7-10 of Lau, showing that Ohnishi et al. (ref. (7)) "have grown films with excellent uniformity and surface finish." However, at p. 1843, second paragraph, left column of Lau (i.e., *Growth methods* section), it is clear that this "excellent uniformity and surface finish" of ZnO film is not intended for a DEZ + H₂O/H₂ CVD method (DEZ/H₂O/H₂ process); but instead is for the ZnO/H₂O/O₂/H₂ transport system of Ohnishi et al. Since ZnO is formed first and DEZ is not used, H₂O of Ohnishi does not function as an oxidant. But rather, H₂O seems to be used as a transport carrier of preformed ZnO (Lau, p.1843, left column, bottom line).

In contrast, Lau demonstrates that ZnO films obtained by a DEZ/H₂O/H₂ process were pale white translucent with a rough surface, while films of a N₂O/N₂ process were transparent with very smooth surfaces (Lau, p. 1845, right column, bottom paragraph-p. 1846, left column). Lau is silent regarding a ZnO film having improved uniformity and surface finish obtained by a DEZ/H₂O/H₂ process. Therefore, a person skilled in the art would not be motivated to employ the

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DEZ/H₂O/H₂ process of Lau in order to achieve improved uniformity and surface finish.

In light of the foregoing, Applicant respectfully submits that the cited references cannot render claim 1 obvious, because the cited references fail to teach or suggest each and every claim limitation. Claims 2-5 depend from claim 1 and therefore, cannot be rendered obvious for at least the same reasons as claim 1. Withdrawal of this rejection is thus respectfully requested.

Claims 1-7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over WO 03/021690 – translation provided by Kroll et al. (U.S. Patent No. 7,390,731) or Vijayakumar et al. (U.S. Patent No. 4,751,149) in combination with Lau. Applicant respectfully traverses this rejection.

Applicant respectfully submits that the cited references cannot render claim 1 obvious, because the cited references fail to teach or suggest “introducing an organozinc compound and a mixed gas in which an oxidizing agent is diluted with a hydrogen gas.”

The Office acknowledges that Kroll fails to teach the use of a diluting gas such as hydrogen and that Vijayakumar fails to teach hydrogen as the inert gas. And similar to the above rejection, the Office states that it would have been obvious at the time the invention was made to have modified either Kroll or Vijayakumar with an inert diluting gas of hydrogen as evidenced by Lau.

Applicant respectfully disagrees for reasons similar to those discussed above. With respect to Kroll, Applicant notes that Kroll does not use a carrier gas (see e.g., Kroll, Abstract); and with respect to Vijayakumar, Applicant notes that the gas for “the oxidant can be any inert gas, for example, argon or helium, or any gas which is inert under the conditions prevailing in the deposition chamber, such as nitrogen.” (Vijayakumar, column 3, lines 48-52).

Therefore, both Kroll and Vijayakumar teach away from the present invention. In addition, Applicant respectfully submits that the Office has failed to show how either Kroll or Lau or Vijayakumar or Lau suggests the desirability of the combination.

In light of the foregoing, Applicant respectfully submits that the cited references cannot render claim 1 obvious, because the cited references fail to teach or suggest each and every claim limitation. Claims 2-7 depend from claim 1 and therefore, cannot be rendered obvious for at least the same reasons as claim 1. Withdrawal of this rejection is thus respectfully requested.

Claims 6 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Yamada in combination with Lau, further in combination with Nishida (U.S. Patent No. 5,002,796) or vice versa. Applicant respectfully traverses this rejection.

Claims 6 and 7 depend from claim 1 and therefore, cannot be rendered obvious over Yamada and Lau for at least the same reasons discussed above. Nishida cannot remedy the defect of Yamada and Lau and is not relied upon by the Office for such. Instead, the Office cites Nishida for teaching the photoelectric structure claimed with the transparent substrate electrode, amorphous silicon, crystalline silicon and another electrode.

In light of the foregoing, Applicant respectfully submits that the cited references cannot render claims 6 and 7 obvious, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Applicant believes the foregoing amendments comply with requirements of form and thus may be admitted under 37 C.F.R. § 1.116(b). Alternatively, if these amendments are deemed to touch the merits, admission is requested under 37 C.F.R. § 1.116(c). In this connection, these amendments were not earlier

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presented because they are in response to the matters pointed out for the first time in the Final Office Action.

Lastly, admission is requested under 37 C.F.R. § 1.116(b) as presenting rejected claims in better form for consideration on appeal.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, in view of the foregoing, are requested.

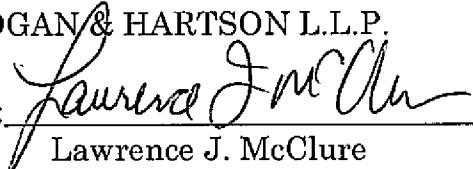
If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (310) 785-4600 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

HOGAN & HARTSON L.L.P.

Date: February 4, 2010

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